Section 02518S

STEEL PIPE AND FITTINGS FOR LARGE DIAMETER WATER LINES

The following supplements modify Section 02518 - Steel Pipe and Fittings for Large Diameter Water Lines Standard Specification. Where a portion of the Specification is modified or deleted by this Supplementary Specification, the unaltered portions of the Specification shall remain in effect.

1.03 REFERENCES: Add the following Paragraph 1.03 BB and renumber existing BB through II:

BB. AWWA C216 - Heat-Shrinkable Cross-Linked Polyoefin Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines

1.04 SUBMITTALS: Delete Paragraph 1.04 C and replace with the following:

C. Submit manufacturer's certifications that pipe has been hydrostatically tested at factory in accordance with AWWA C 200.

2.01 STEEL PIPE: Delete Paragraph 2.01 J.3 and replace with the following:

3. Pipe Manufacturer: Refer to Specification Section 02511 - Water Mains for performance history requirements. In lieu of passing Hydrostatic Joint Test, Contractor may opt to provide all welded joints.

Delete Paragraph 2.01 J.8 and replace with the following:

8. Rubber Gasketed Bell-and-Spigot Joints:

a. Bells: Formed by either expansion of pipe end, or by segmental expander which stretches steel past its elastic limit, or by attaching sized weld-on bell rings. Weld-on bell rings shall comply with AWWA M11 and AWWA C200, attached with full-thickness fillet welds, and welded inside and out (double welded). Minimum thickness of completed bell ring is equal to thickness of pipe wall in barrel of pipe between joint ends.

b. Spigots: Sized prior to rolling gasket groove. For Carnegie joints, attach with full thickness fillet welds, welded inside and out (double welded). Minimum thickness of joint ring shall be equal to or greater than thickness of pipe wall in barrel of pipe between joint ends.

c. Joints shall be interchangeable and match up during installation, even if used out of sequence.

d. Provide bells and spigots with dimensions and tolerances in accordance with AWWA C 200, as modified herein. Difference in circumference between ID of bell and OD of spigot shall be between 0.00 inch to 0.10 inch as measured with steel circumference tape. Measurement shall be taken at point of full joint engagement, and pipe cylinder shall be within allowable deflection. Clearance between bell and spigots shall be such that, when joint is assembled, water-tightness will be obtained under operating conditions.

e. Furnish joint suitable for safe working pressure equal to class of pipe. Joint shall operate satisfactorily with pull-out, tangent of which is not to exceed 0.75 inch/D, where D is outside diameter of pipe in inches or with pull-out of 3/4 inch.

f. Joints shall be self-centered and gasket shall be restrained or confined to annular space in such a manner than movement of pipe or hydrostatic pressure cannot displace it. Compression of gasket when joint is completed shall provide watertight joints under operating conditions when properly installed. Compression of gasket shall not be dependent upon water pressure in pipe.

Delete Paragraph 2.01 N.1 and replace with the following:

1. AWWA C200 Section 5.2, at point of manufacture. Hold test for minimum 2 minutes and conduct thorough inspection of pipe. Repair or reject pipe revealing leaks or cracks.

2.03 EXTERNAL COATING SYSTEM FOR STEEL PIPE INSTALLED ABOVEGROUND AND IN VAULTS (EXPOSED): Delete Paragraph 2.03 C and replace with the following:

C. Perform adhesion test on pipe in accordance with ASTM D 4541. Minimum field adhesion: 1,000 psi. Perform test on pipe for project at frequency of one for every 1000 square feet of polyurethane coating. Perform cure test in accordance with ASTM D 4752 (solvent rub test) and ASTM D 3363 (pencil hardness) for each section of pipe. Repair tested areas with approved procedures.

2.04 EXTERNAL COATING SYSTEMS FOR BURIED STEEL PIPE: Delete Paragraph 2.04 A.3 and replace with the following:

3. Polyurethane Coating: See Section 02527 - Polyurethane Coatings on Steel or Ductile Iron Pipe for requirements for use of polyurethane coating system. Refer to Paragraph 2.03 C of this Section for field testing requirements. Provide inspections by NACE trained inspectors under supervision of NACE Certified Coatings Inspector having Level III Certification.

Delete Paragraph 2.03 B and replace with the following:

B. Heat Shrink Joint Sleeves for Tape and Polyurethane Coating: Aqua Shield or approved equal. For repairs to heat shrink joint sleeves, use Aqua-Shield repair kit or approved equal. Pipe manufacturer to hold back coatings at joints as per shrink sleeve manufacturer's recommendations.

3.03 EXTERNAL COATING SYSTEM FOR BURIED STEEL PIPE. Delete Paragraph 3.03 A.1 and replace with the following:

1. Joint Protection.

a. Heat Shrink Sleeve: In accordance with AWWA C216. Provide Aqua-Shield, or approved equal. Apply manufacturer-approved insulating putty at bell step-offs. For welded joints, apply heat-resistant protective sleeve, such as Aqua-Shield AQW-WAB or approved equal, prior to internal welding. Surface preparation: Clean exposed metal with solvent, wire brush, and blast clean in accordance with AWWA C216 and manufacturer's specifications. Apply sleeve in accordance with manufacturer's specifications. Visually inspect sleeve to verify adhesive flows beyond edge, and there are no cracks or holes. Repair as necessary in accordance with AWWA C216 and manufacturer's recommendations. Shrink sleeve manufacturer's technical representative shall be available on site at beginning of pipe laying operations, and advise Contractor and Project Manager regarding installation, repairs, and general construction methods.

b. Heat-Resistant Tape Coating System: In accordance with AWWA C209. Polyken or approved equal. Apply manufacturer-approved insulating putty at bell step-offs. Surface Preparation: Clean exposed metal with solvent, wire brush and blast clean in accordance with AWWA C209 and manufacturer's specifications. Follow with primer, and then tape coating in accordance with manufacturer's specifications. Visually inspect finished coating for damages, flaws, holidays or mislaps. Repair as necessary in accordance with AWWA C209 and manufacturer's recommendations.

Tape manufacturer's technical representative shall be available on site at beginning of pipe laying operations, and advise Contractor and Project Manager regarding installation, repairs and general construction methods.

Add the following Paragraph 3.03 E.

E. Polyurethane Coating. Comply with requirements of Paragraph 3.02

END OF SUPPLEMENT

Approved by:

Hamlet Hovsepian, P.E.
Managing Engineer
Engineering and Construction Division

Date 1/18/05